

In the Claims

1.(Amended) A charging circuit in a back-up power system, comprising:
an output terminal electrically connected to a main power for providing an AC output voltage;
a transformer having a secondary electrically connected to said output terminal;
an electrical energy storage and supply device providing a DC current;
an inverter having an ~~output end~~ output electrically connected to a primary of said transformer and an ~~input end~~ input electrically connected to said electrical energy storage and supply device and comprising four gate control switch devices to form a bridge switching device, wherein said four gate control switch devices respectively have an anti-parallel diode;
a first diode having an anode electrically connected to one output terminal of said bridge switching device;
a second diode having an anode electrically connected to the other output terminal of said bridge switch device; and
a charging switch device having a first conducting terminal electrically connected to a common cathode of said first and said second diodes and a second conducting terminal electrically connected to a negative electrode of said electrical energy storage and supply device so as to charge said electrical energy storage and supply device through a conduction state and a cut-off state of said charging switch device.

2. (Original) The charging circuit according to claim 1, wherein said electrical energy storage and supply device is a battery.

3. (Original) The charging circuit according to claim 1, wherein each said gate control switch device is a power MOSFET and said anti-parallel diode is an intrinsic anti-parallel diode of said power MOSFET.

4. (Amended) The charging circuit according to claim 1 further comprising a fixed switch electrically connected between said main power and said output terminal for determining one of a conduction state and a cut-off state therebetween according to a control signal.

5. (Original) The charging circuit according to claim 1, wherein said back-up power system is a line-interactive uninterruptible power supply system.

6. (Original) The charging circuit according to claim 1, wherein said back-up power system further comprises a current limiting resistor electrically connected with said charging switch device in series.

7. (Amended) A charging circuit in a back-up power system, comprising:
an output terminal electrically connected to a main power for providing therefrom an AC output voltage;
a transformer having a secondary electrically connected to said output terminal;
an electrical energy storage and supply device providing a DC voltage;
an inverter having an ~~output end~~ output electrically connected to a primary of said transformer and an ~~input end~~ input electrically connected to said electrical energy storage and supply device and comprising four gate control switch devices

to form a bridge switching device, wherein said gate control switch devices respectively have an anti-parallel diode;

a bridge rectifier having an ~~input-end~~ input electrically connected to said ~~output-end~~ output of said inverter in parallel; and

a charging switch device electrically connected to an ~~output-end~~ output of said bridge rectifier in parallel so as to charge said electrical energy storage and supply device through one of a conduction state and a cut-off state of said charging switch device.

8. (Original) The charging circuit according to claim 7, wherein said electrical energy storage and supply device is a battery.

9. (Original) The charging circuit according to claim 7, wherein each said gate control switch device is a power MOSFET and said anti-parallel diode is an intrinsic anti-parallel diode of said power MOSFET.

10.(Amended) The charging circuit according to claim 7 further comprising a fixed switch electrically connected between said main power and said output terminal for determining one of a conduction state and a cut-off state therebetween according to a control signal.

11.(Original) The charging circuit according to claim 7, wherein said back-up power system is a line-interactive uninterruptible power supply system.

12.(Original) The charging circuit according to claim 7, wherein said back-up

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power system further comprises a current limiting resistor electrically connected to said charge switch device in series.